

## WORKSHOP I

### SUMMARY OF AIRPORT TECHNOLOGY NEEDS

Homer G. Morgan, Chief, ANRD, Langley Research Center: The Airport Noise Group was made up of people who tended to have a long association with airport noise problems; thus the group had an extensive corporate memory. These people pointed out that politics and economics tend to outweigh psychoacoustics in the real world of airports and community noise. However, they supported a continuing need for improving our understanding of human response to noise, even though decisions are ultimately based on the realities of life in the community.

The group consensus was that noise assessment methodology is unreliable, primarily because of the inability to account for all of the variabilities of individuals and communities. Noise impact is not consistently quantified, even though the best information available is used. The unreliability in methodology leads to lack of confidence on the part of the public in decisions that must be made. Thus, both the public and the technical people are dissatisfied with the results. The impact quantification problem is very complex, but the public demands simple measures. Even though the tools for quantifying psychoacoustic impact are getting better and better, prediction of political consequences is still out of reach. Progress has been made and more is needed, but we must recognize that completely satisfactory answers are unlikely to be achievable.

Research by NASA to develop a better relationship between noise dose and individual and community response should be pursued with the assurance that a better understanding of this relationship would be applied by people working on real airport noise problems. Both laboratory research and field testing appear to be required for continued progress in understanding airport/community noise impact, and these should be used, as appropriate, to answer specific questions. Whenever community surveys are conducted, they should be accompanied by physical noise measurements in order to improve their accuracy and utility. It was also pointed out that health effects (if any) attributable to aircraft need to be quantified. It was also generally agreed that communication between community groups and active researchers as represented by this workshop was valuable, and that this effort should be continued.

Two general approaches to further research in the area were discussed. They may be roughly described as (1) a multidimensional, organization dynamics approach to studying community characteristics, and (2) the traditional psychoacoustics approach of laboratory and field testing. The majority of the participants believed that the latter approach had a better chance of contributing to the research effort. Within the traditional psychoacoustics approach, the group selected five factors as topics for further study. In descending order of importance, they are:

- |   |                                 |
|---|---------------------------------|
| (1) Time-of-day effects                     | (4) Dwell                       |
| (2) Noise level versus number of operations | (5) Ambient noise level effects |
| (3) Complaint insight                       |                                 |